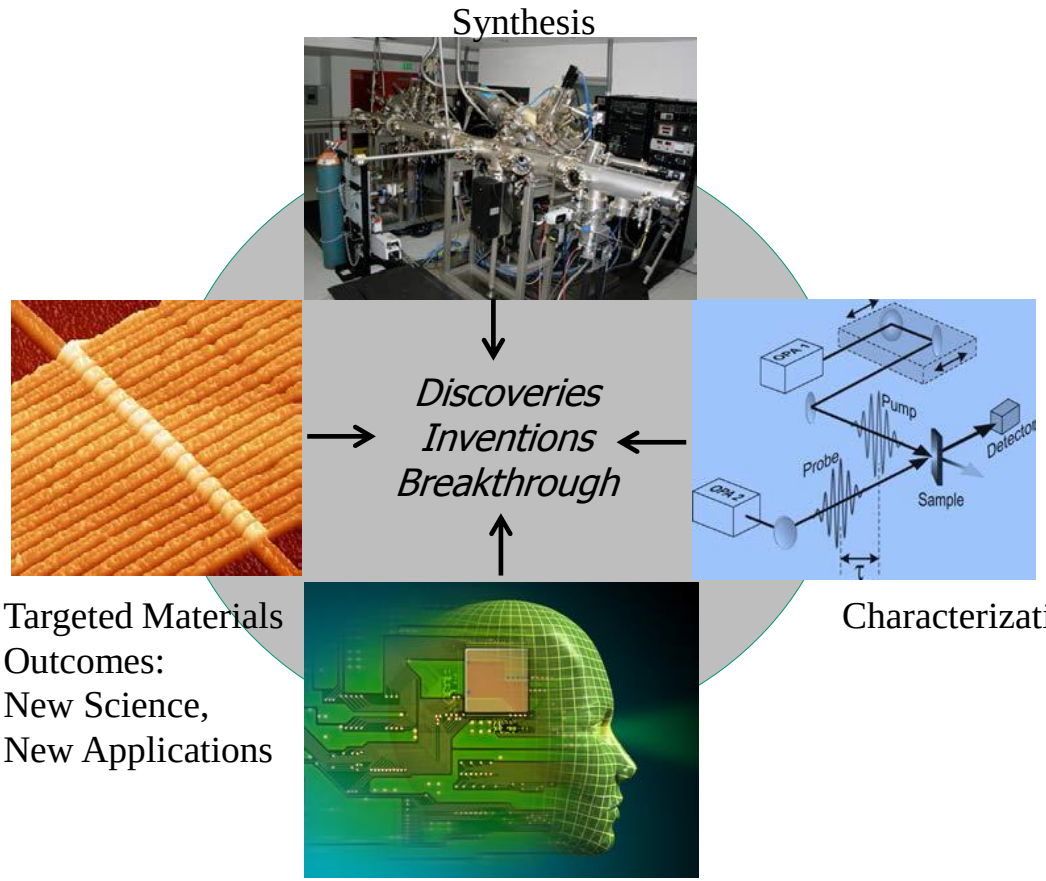
National Science Foundation

Materials Innovation Platforms (MIP)



From the MPS AC Report: Closing the Loop Materials Instrumentation

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National Facilities program

Materials Innovation Platforms (MIP)

…establish focused research teams who substantially accelerate the discovery of new materials and phenomena through the access of unique and world class instrumentation which provide access to users nationwide.

New Model for DMR – focused research effort and user facility together.

3 Aspects of a Platform:

- Research
- User Facility
- Education and Outreach

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Materials Innovation Platforms (MIP)

Research

- MIPs are centered around a focused *research team* of at least 3 senior investigators.
- MIP in-house research is transformational and *focused* on a targeted materials grand challenge and/or technological outcome of *national impact*.
- Research achievable only through the *acquisition and development* of unique, state-of-the-art, mid-scale instrumentation.
- Expect new materials, new instrumentation and new techniques.
- New materials and materials phenomena are discovered where synthesis, characterization, and theory/modeling are done in an *iterative and "closed-loop"* manner.
- Synthesis, characterization, theory/modeling are *equally weighted* in a MIP and *advances are expected in each area*.

For further information:
NRC Report, *Frontiers in Crystalline Matter: From Discovery to Technology*
MPS Advisory Committee, *Closing the Loop*

Materials Innovation Platforms (MIP) Con't.

User Facility

- In addition to MIP in-house research, a MIP supports a state-of-the-art *national user facility* to service external users who has access to all aspects of the Platform.
- MIP in-house research and the user program *together increase the rate* at which new materials and materials phenomena, instrumentation, and techniques are discovered, disseminated, and deployed.
- Utilization of MIP-purchased tools and access to MIP domain expertise by external users within the user facility should account for *at least 50% of the MIP effort*.

* Unlike Centers, the MIP budget is primarily focused on providing equipment and Professional Staff to advance the research and support users, and not the support of students.

Materials Innovation Platforms (MIP) Con't.

Workforce Development, Education, and Outreach

- MIPs *train the next generation* diverse scientific workforce which is equipped with the scientific and technical depth/breadth to work in a team tackling emerging challenges .

*Unlike Centers, MIPs have a limited number of focused Education and Outreach activities that are directly related to the MIP research.

Materials Innovation Platforms (MIP), Con't.

- Full proposals due – March 2, 2015
- Submissions: 1 proposal per academic institution
- Synthesis of bulk single crystal and thin film "hard materials"; i.e. inorganic materials, is the focus of the first solicitation. Refer to NRC study "Frontiers in Crystalline Matter: From Discovery to Technology"

- At least 3 Co-PIs with expertise in synthesis, characterization, and theory.
- Support for technicians and research scientists for instrument development and operation of the user facility.

- 1 – 3 awards anticipated
- $10M – $25M/award over a 5 year period.
- 1 time renewal for an additional 5 years, subsequent a favorable NSF review.

- Expect the focus of future MIP solicitations to change, informed by workshops.

Materials Innovation Platforms (MIP), Con't.

For additional information:

Solicitation 15-522 – Materials Innovation Platforms:
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505133

MPS Advisory Committee, *Closing the Loop*:
http://www.nsf.gov/mps/advisory/mpsac_other_reports/materials_instrumentation-final_from_subcommittee.pdf

NRC, *Frontiers in Crystalline Matter: From Discovery to Technology*:
http://www.nsf.gov/attachments/118193/public/Frontiers_in_CrystallineMatterSummary.pdf

Questions:
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